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SKIES IN LANDSCAPES.

BY XANTHUS SMITH.

THE beauty of landscape scenes is so much enhanced, when there is sky appearing, by the introduction of suitable clouds that we wonder more pains are not taken to introduce agreeable sky effects in photographic landscape views.

Painters set great store upon the varied effects which may be attained in the skies of their pictures, independently of the coloring; the mere design and massing of light and dark, which are fully attainable in photography, are matters of much solicitude with them. A brilliant mass of light in a sky gives wonderful life and interest to a picture, and broad masses of shadow are often resorted to in order to unite the sky with the darks of the foreground, and to give support to dark features rising up and cutting upon the sky.

Of course in the photographic art the scope is extremely limited, as compared with that of the painter, for giving play to the fancy in choosing skies and grouping clouds as they should be; but in the simpler forms of composition and effect photographers might enhance the beauty immensely of some of their more careful and successful landscape scenes by the introduction of clouds. Probably the most usual mode in practice for the addition of skies to landscapes is that of printing them in from negatives previously taken of fine skies; but I am not going to urge this mode of obtaining what is wanted, because it is open to

several objections, the principal one being that a sky which photographs well is so round and bold in character that it is apt to take too much consequence in the picture, and it is so important that the lighting of the clouds should precisely accord with that of the landscape, that it would require a great stock of cloud negatives from which to secure what might be required. In printing in, also, all opportunity is lost of accentuating certain portions to give artistic effect, and I think, therefore, except perhaps in the case of open sea views, that it is much better to paint the sky upon the back of the negative, opportunity being afforded in following this mode to design a sky that will harmonize with the subject of the picture in every respect. The principal obstacle in the way of put-on skies is that it sometimes happens that the sky of the negative is so dense that nothing can be put upon it which will print; but a good negative should not be so dense in the sky, and in such case the only way would seem to be to omit clouds altogether or print them in from sky negatives.

I have found the following the best mode of procedure for putting skies on negatives: In the first place, they should always be painted on the back or glass side, and the glass must be thoroughly cleaned and washed over with some liquid ox gall; then, having mixed some "opaque" with water (I have often found beer to answer admirably), fill a good soft-bristle brush—preferably with a rounded end—with the mixture, and flow on your clouds. The negative should lie flat while the color is being flowed on, and then taken up and held perpendicularly, more or less, and turned around, being watched by transmitted light the while, and the moist color flowed in such a manner that the greatest amount and consequently the most density will be where the highest lights should come. This turning motion of the negative must be continued until the color sets; and when the color flows too thick towards one edge it should be laid flat for a little while, so that the latter may become somewhat diffused again. All this will probably appear very difficult of attainment to a novice in the art, but, like some other things, the sleight and confidence attained by some trials will soon bring the experi-

menter to a successful stage of progress. A great advantage in this mode is that the work is very quickly done,—indeed, rapidity of procedure is a concomitant of success,—and each failure can be removed in a moment and another attempt made, no injury to the negative resulting from any amount of attempts and failures upon its back. One point which is important is that the mixture of opaque when flowed on should be just of a proper consistency. If it be too thick it will not flow well, and will make the clouds too harsh and brilliant, unless perhaps when the sky of the negative is very dense, which will require a thick mixture. If the color is used too dilute, there will not be sufficient density attained. A knowledge of this can only be attained by practice. It is also important that a large brush be used; one of about a half-inch in width is a good size for 4¼x6½ to 6½x8½ negatives, and I spoke of its being rounded because the rounded forms of clouds are better got than with a brush that is square on the end, the latter making the forms too angular.

When the sky becomes dry, as it should do in a few minutes, undesirable portions may be removed, and harshness softened, by wetting a camel's-hair or sable brush in clean water and squeezing it out flat, and with this delicately wiping off and shaping the forms, and modifying them to suit the taste.

The fancy can be allowed full scope in the matter of design. The entire range through flat, stratified, and full cumulus, to the most delicate, fleecy cirrus, is open to the aspirant to artistic success. He has Nature, the great teacher, before him every day to study and to supply him with the very finest of material; but it must be remembered that grouping and simplicity of design are important elements of success in the addition of skies in pictures. It will not do to spatter our clouds all over the sky; they must be grouped, and large portions left free from them, and in repose, and a repetition of the same form many times over must be avoided. Such repetitions frequently occur in nature, but as these accidents destroy that variety which gives interest and pleasure, it is better to avoid them.

THEN AND NOW.

BY ELLERSLIE WALLACE.

IN the early days of the daguerreotype it was not unusual to give thirty minutes exposure. Within our own recollection, in the year 1848, one minute was given. It was considered marvelous when the talbotype and collodion finally reduced the exposure to fifteen seconds, in a good light and with chemicals in good order.

It was a serious matter to photograph babies and children in those days. The youngsters, of course, would not keep quiet a moment, though a few seconds with the full aperture of the lense were absolutely necessary to obtain the negative. Ferrotypes were a boon to the operator who had a fretful child to deal with, inasmuch as less time was required. In cases where a very sharp 8x10 inch negative was required, we ourselves have sat for from sixty to ninety seconds in an intensely bright light, the tears streaming down our face and black moons dancing before our eyes. We were cooly reminded by the operator that we must "think of something pleasant," so we found that the best way was to count up the good times we should enjoy resting in an arm-chair and fanning ourselves after the negatives were finally made. It was no joke to sit for a picture in those days!

The portrait galleries of modern times present a charming contrast to those of former days. We now enter a comfortable reception room filled with beautiful pictures, and after a short wait we are politely shown into the elevator,—that is, if the operating room is at the top of the house,—and are upstairs in an instant. No blinding lights are allowed in the operating room of to-day, and few accessories are to be seen. We are seated in a nice arm-chair and focused upon (the head-rest being seldom employed). The assistant sets a dark-slide by the camera, and the operator, when ready, makes three or four exposures of one, four, or five seconds each—which is quite sufficient. In fact, the whole thing is over before the sitter fairly knows what he is about. In fact,

going to have one's picture taken is now a pleasure, and the bromo-gelatine dry plate is the power that makes such results possible.

So much for the routine of portrait-making in galleries and skylights. But if we take a look at out-door photography we find the improvement over old methods perhaps even greater. The comic pictures seen in our advertising columns of "Then and Now," where the older photographer toils under the weight of tremendous tents and plate-holders, while the modern operator steps jauntily along with a neat little box in his one hand and a cigarette in his mouth, are really *true;* they are not exaggerations. In old times the exposures for out-door subjects used to run from thirty seconds to *half an hour*. For instantaneous work only the best-lighted views could be taken at all, and this in the most favorable weather. Drop-shutter exposures required the full opening of the lens, which had to be carefully selected for the purpose, and cost a heavy sum of money. Indeed the man who possessed a matched pair of lenses quick enough for drop-exposures on river and street views was considered a sort of "bloated aristocrat" by his colleagues.

An old friend of ours, who now is on an extensive tour in the west, tells us that with Carbutt's quick orthochromatic plates, the Ross rapid symmetrical lens, stop F32, in diffused light, an exposure of two seconds gives negatives with full detail in the shadows and good plucky printing qualities. This friend of whom we speak is one of those over-particular men about his negatives, who will not be content with anything save what is of the very best. So we know that when he says a thing, he means it. This same gentleman, let us add, is very partial to the ferrous oxalate developer, and likes it because the negatives come out free from yellow stain, even at the cost of an increased exposure. To be sure, hydrochinone, or a mixture of this new substance with eikonogen, also gives beautifully clean negatives, and where extreme speed is not required we should feel inclined to either of them rather than to pyro, simply on account of obtaining clear, crisp negatives with ease. Stains on negatives, like stains on reputation, are hard to get rid of.

PHOTOGRAPHIC PORTRAITURE.

BY ALFRED PATTERSON.

THERE can be no doubt that among the many advantages we have at the present time over those enjoyed by our ancestors may be reckoned the spread of and great and rapid improvement in the art of photography. That this is largely due to the efforts of amateurs, among whom in some branches of the art are to be found the leaders, far be it from me to deny; but the particular branch with which I am now concerned, namely, portraiture, owes but little of its wonderful development to them. There are many good reasons why this is so, and it is not for the professional photographer to complain, for were amateurs to practice portrait photography with an equal assiduity and success as they do landscape photography, they would seriously, very seriously, compete with those who endeavor to make a living out of the practice of this branch of the photographic art.

Whether photographs of land- and seascapes are a help or a hindrance to art, is a question that I need not enter into here, although I have not the smallest doubt that it owes much to them. However, be this as it may, the *raison d'être* of photographic likenesses is fully established on quite different grounds. Beside the historical value of likenesses of public persons, it is natural to wish to possess those of our friends. Likenesses are also useful to persons in certain professions when seeking situations, and for many other purposes. These reasons are in themselves quite sufficient to justify photographic portraits, independently of any artistic merit they may or may not possess. Granting this much, it follows as a matter of course that the better these portraits are as likenesses and as photographs, the better they will fulfill the objects for which they are produced; and if, without damage to the truthfulness of the likenesses, they can be made artistic, so much the better still. It is because, great as has been the improvement in them of late years, I feel that they are capable of still greater improvement that I venture to write this short article upon the subject.

The most essential quality of a portrait, whether it is a painting, drawing, or photograph, I take to be that it is a good likeness, and next that it is artistic. Some people suppose that an untouched photographic portrait must be a good likeness, however bad a "picture" it may be. Now this is quite a mistake. A good likeness not only reproduces the features correctly, but also a characteristic expression of the sitter. As a general rule the ordinary private person who goes to a photographer's for the purpose of having his portrait taken no sooner arrives at the studio than he becomes nervous and self-conscious, and therefore assumes an expression totally unlike any usual to him. And it must be remembered that most persons recognize those they frequently see rather by expression than feature. This nervous self-consciousness and a tendency that many people, particularly ladies, have to dress in their least suitable clothes, are perhaps the two most trying things in a sitter with which the photographer has to contend. On the whole, however, it is usually the operator, and not the sitter, who is to blame if the ultimate result is unsatisfactory.

I will now consider what it is that one must guard against if one wishes to produce a photographic portrait correct as a likeness and artistic as a picture,—at once pleasing to the sitter and satisfactory to the photographer. In the first place, the photographer is undoubtedly much worse off than the painter is in the question of dress. It is very seldom that a photographer can have a word in the choice of the dress of his sitter. There may be some rare exceptions, in the case of a few photographers of high standing, when taking ladies and gentlemen of the theatrical profession on special terms; but such exceptions only occur very seldom, where in the case of painters it is the rule to consult them in the matter. Ladies about to be photographed should remember that in a portrait it is the features, not the frock, frills, and furbelows that are most important. Do not let it for one moment be supposed by this statement that I do not think dress a very important consideration in a portrait, for I do; but it should be considered rather from the standpoint of the artist than

the dressmaker. Again, there is a fear of my being misunderstood, and the reader thinking that I advocate some special so-called artist style of costume, unlike anything one would usually wear. Nothing of the kind is my intention. What I do strongly object to is some special inartistic style of dress which no one would think of wearing except to be photographed in. As a general rule it is best, when going to have one's likeness taken, to go in one's most comfortable clothes, which will probably not be one's newest or most trimmed, but the least stiff and best made. Although the last few sentences refer especially to ladies, much the same may be said to gentlemen. To them I say emphatically, Do not come in a new coat if you possess an equally well fitting one that has been worn some time. It is, of course, impossible to lay down hard and fast rules applicable to all alike. The great thing is to dress so as to feel comfortable and be natural. I have said nothing on the question of color, and I think it hardly necessary to do so, for at the present time almost everyone knows which colors photograph well, or at any rate which do not.

Expression is, of course, of even greater consequence than dress. Here again the photographer is at a disadvantage; for frequently, aye, generally, the pleasantest and most natural expression of a person is an animated one, which the restraint of having to sit quite still, even for a few seconds, and the consciousness of being photographed, renders it impossible to have at the moment of exposure. The facial expression is sure to be stiff and strained when the sitter is posed in a stiff, unnatural position. The question of posing is one of the most, if not the most, important with which the portrait photographer is concerned, and I venture to think that it is one of the least generally understood. To pose a person or a group well one must be sufficiently an artist to know at once what will make a good picture. Many operators try ever so many positions before they decide in which to take the portrait. This, I maintain, is wrong. By so doing one tires and fidgets the sitter, and if he has the smallest inclination to nervousness it is thus greatly increased. Speaking from experience, I have found that, as a general rule, the best portraits

are those taken with the least posing. This is certainly the case when the sitters are private people. Ask your sitter to take a seat, and talk to him naturally on general subjects, and being thus put at his ease he will in all probability take a good and natural position, with perhaps—for "perhaps" I fear one may read "generally"—the head a little on one side, which, without any tiresome trying of different attitudes, you can easily get him to rectify. The great thing is—and it cannot be too strongly insisted upon—to have the sitter at his ease. Of course I do not mean that he should be taken lolling about anyhow; but what I do mean is that it is quite possible and easy to get almost any one to take the good position you require without making him uncomfortable or worrying him. I have myself often found it advisable to take a person first in a relatively bad position, and having made the first exposure, I found it easy to get my sitter to take a fresh position for the second one, without his feeling bothered and worried at having to do so. What the professional photographer should remember is that too much posing is a common and most inartistic fault.

In a short article I cannot deal with all the questions affecting portraiture. As to the relative merits of silver prints, platinotypes, etc., and the best sizes and shapes of portrait prints, I shall leave them for the present.

In no form of photography is lighting of greater consequence than in portraiture. For my own part, I do not usually approve of startling effects of light and shade in a portrait, for, however much it may add to the charm of the picture, it most certainly detracts from the truthfulness of the likeness. No invariable rules can be laid down for lighting and posing. In each photograph taken the operator should be influenced by the subject to be photographed. Some people are best taken full-face, some three-quarters, and a very few in profile. Some look best lighted from the left-hand side, others from the right-hand side; some by a strong light, others by a more subdued one. A photographer who is sufficiently an artist to take a good portrait will know at once how to place and light his sitter so as to obtain the most satisfactory results. Of course experience is required to learn

this art; but that experience should not be got at the expense of customers. It is much too common an idea that any one can be a photographer without taking the trouble to learn the craft; and this is the reason why we have so many ghastly failures called photographic portraits.—*Photographic Quarterly.*

A SUGGESTION FOR A POSSIBLE METHOD OF IDENTIFYING THE COLORS PHOTOGRAPHED.[1]

JULIUS F. SACHSE.

THE production of orthochromatic or color-stained plates, which will yield negatives or prints giving approximately true color values, is at present one of the most active problems of the photographic world, attracting the attention of specialists and active researchers in almost every country.

These color sensitive plates, by reason of improvements made in the dyes used, thus insuring their stability or keeping qualities, in addition of increasing their sensitiveness to shades of color, together with the reduction in the price of manufacture, has of late increased their popularity with the professional as well as the amateur photographer, so that where but a short time ago they were only used by experimentalists, and by a few professionals for copying art paintings and like subjects, they are now coming into general use in all branches of photography, from studio portraiture down to the snap-shot of the hand camerist.

Ever since the orthochromatic principle was first broached, the hope was fostered that by some means, in addition to giving true color values, it would become possible to find a method to distinguish or identify by the print the colors in the original. This problem has for a long time remained a matter of conjecture and research, engaging the attention of the best known photographic students and theorists at home and abroad, as is instanced by the experiments with the solar spectrum and shades of color,—thus far, however, without leading to any practical method by which the colors in the original might be identified at sight.

In connection with this subject, I wish to bring to your notice a suggestion for a simple method by which this much-desired object may be obtained, at least under certain conditions in suitable subjects,

[1] Read before the Photographic Society of Philadelphia, April 8, 1891.

as you will see by the results shown by the negatives and prints as well as on the screen.

The experiment may be considered a partial solution of the problem, at least within the scope of the subjects and colors upon which I was able to experiment. The subjects were entomological and ornithological (butterflies and birds), and were selected with reference to the brilliancy of the colors and the difficulties which they have heretofore presented to the photographer.

The suggestion, as you will perceive, is simply to photograph a color key along with the subject, which shall explain itself.

Of course, I do not for a moment wish to claim that this method will work in every case and subject, or where there is a marked admixture of white or black with the respective colors; but under stated conditions, for such subjects as indicated, as well as other departments of natural history, where the colors of the insects, animals, or flowers are bright and decided, I do claim that with suitable orthochromatized plates, and where the requisite care is taken to prepare the color key, and to ensure correct exposure and development, the suggestion, simple as it is, will be found to work satisfactory, and that the colors of the original can be distinguished or recognized in the print in every case by the student who is able to judge, regardless of how much it might puzzle the general observer who is not at all familiar with the subjects.

I will now call your attention to the negatives and prints, and will state that they were made on the ordinary commercial plate, with a portable outfit, in the Academy of Natural Sciences of Philadelphia, with a poor side light, under very adverse conditions. The first picture (No. I.),[1] a print of eight butterflies, selected on account of their varied colors, which comprised lemon-yellow, brilliant blue, blood-red, orange, bright red and black. Care was taken that the specimens, with the color key, should all be upon the same plane, and to ensure an equal illumination.

The color key was formed of a plain white card, upon which was fastened pieces of tissue paper matching in color the hues of the moths, two of the shades, the bright blue and the red orange, I unfortunately was not able to match exactly from the resources at my disposal as well as they might have been. However, crude as this experiment is, the result will prove the correctness of the principle as suggested. With the use of a color screen or light filterer much better results can be obtained, which I trust to show you at a future meeting. Still you will perceive that the four colors can be easily identified in the subjects.

[1] See Frontispiece.

The plates used were the regular Carbutt Orthochromatic, Sens. 23. The development was with the Combined Developer as per formula in AMERICAN JOURNAL OF PHOTOGRAPHY (February, 1891, p. 91). I will also state that plates of the same emulsion, but not orthochromatized, did not prove successful, as you will see by comparing the prints numbered I., VII., and VIII., respectively. The attempt to attain the results by pyro and soda developer also resulted unsatisfactorily, all things being equal.

In the next subject, the *Sittace macao*, or red-and-yellow maccaw,—a very unpromising subject,—you will see on the print from an orthochromatic plate the five colors, cream, blue, yellow, red, and green are all plainly marked or discernable, while on the print from a plain plate there is but little distinction between the two first colors or the three latter ones.

One matter I overlooked in this experiment, viz: In making a color key always to include black where it appears in the subject, as where bright deep red, and black appear close together, as in this subject, it would be hard to tell which was the red from the black, especially if strongly printed.

The question may be asked, Of what practical value or extended use is this color key? In reply I will state, first, from a scientific point of view, that any process of reproduction by which the natural colors can be deciphered, or even approximated, must prove of the greatest value. This is especially true in the department of entomology and ornithology. Further, the absolute truthfulness of the photographic processes is far in advance of the laborious and expensive hand productions which are now used in the study of scientific matters. In addition, our present illustrations too often carry with them the individuality or imagination of the artist, to the detriment of nature, notwithstanding the great care taken by scientists to obtain the pictures true to nature.

Then we have the great search power of the camera, with perhaps its greatest possibilities yet undeveloped, showing the structure of insect life, with a fidelity to nature in its most minute parts, unequalled by any other process, which is now supplemented by the simple process brought to your notice this evening, foreshadowing the possibility of distinguishing the various shades of color in the original.

From the commercial point of view, the above application cannot be overestimated, as you will see that by the aid of the color key and orthochromatized plate a negative can be obtained from which a halftone (Ives) process block can be made, retaining the graduations of

shade necessary to the identification of the shades of color in the original, thus opening a field for the production and illustration of scientific works on a scale heretofore impossible, while at the same time reducing the price and increasing the value, which cannot but help to popularize the study of the scientific subjects to which the process is applicable.

THE RISE AND FALL OF THE TURKEYTOWN CAMERA AND TRIPOD CLUB.

BY J. FOCUS SNAPPSCHOTTE.

(*Continued from page 129.*)

BROTHER BLOSSOM presented the application of young Mr. David Fodder, who wanted a "drop-shutter" of his colt taken while trotting at a 2.14½ gait; cash when picture was done. He also presented one from Engineer Dougherty, on the railroad (who shaves with him), and wants himself taken in his cab on the locomotive as it passes the signal tower, going forty-five miles an hour; will pay a dollar for the photo. if good. Last of all came that of Miss Sarah Eliza Billingsgate, the schoolmarm of the Gobblerville Unclassified Public School. She wanted herself and scholars taken in the schoolroom, she standing on the platform with her left hand on the revolving globe, the right pointing to the blackboard, while her fifty-two scholars were grouped around her. She would take five, and agree to make each child buy one, provided no charge was made for her own.

It was now determined to call a special meeting of the club on the first clear Monday, and try the apparatus by "taking" the directors and their families.

Brother Blossom moved that an "atelier" and skylight be erected for the uses of the company. He further stated that he had two hot-bed sash temporarily out of use which were at the disposal of the company. Offer received with thanks. Adjourned.

On the next Monday fortune seemed to favor the company. The day was bright and clear, and even before the appointed hour the whole board was present at the parson's. Considerable impatience was manifested during the preparations. As Brother

Bangles expressed himself,—"De sun am now at high meridian, and it am time dat de membahs of de club be called to ordah in de due an' anchient form; so youse will gobern youselfs accordingly."

Never was there a conclave more solemn. Hip, who had begged off, telling the doctor that his aunt was very sick, together with the parson, was setting up the tripod and camera, and by the aid of the instructions was getting things in readiness. The kitchen was improvised as a dark room, the holders filled, and at last all was ready for the exposures.

After much discussion it had been concluded that the first picture was to be a group of the officers and stockholders present, the former in front. Here a new trouble arose. The camera was in place and the group formed, but who was to manipulate the camera? Hip, however, always ready with suggestions, came to the rescue with a plan which was at once adopted, viz.: The parson was to focus on the group, put on the cap, to which Hip would tie a string, draw the slide, then take his place in the group to the left of the president, when Hip would pull the string and uncap the lens; and when the time was up he would run up to the camera and quickly recap the lens. So, when all was in readiness, Hip, at the word from the president, gave the string a jerk. It was more than effective, as he not only uncapped the lens, but upset the camera. A cry of horror arose from every brother and sister present, and numerous exclamations derogatory to Hip became audible. He, however, at once sprang forward, picked up the tripod, brushed off the plate, and replaced the slide in the holder.

After order was restored and the camera again in position, Brother White, whose word was law, now interposed, and commanded Hip to manipulate the camera. The holder was reversed, and after another reference to "How to Make Photographs," it was concluded to insert the smallest stop and count twenty; and so that there should be no mistake about the time, Brother White stated that he would "mark time" with his right hand. So the cap was taken off and replaced in due time. Hip then, in his hurry, took off the plate-holder without putting back the slide.

On looking at the plate and seeing nothing on it, he proposed to put it back again and give it more time. This was done.

The next exposure made was one of the president, Geo. Wash. White, Esq., as he said he wanted a "solo" alone by himself. So, striking an attitude, with well-worn silk hat in hand held in front of his bosom, and his bandanna protruding from his breast pocket, he assumed a pose, and ordered Hip to put in the largest stop for him. He also told him that he would mark time with his hat. The exposure was accomplished without accident.

The next in order was the wife of the president, Mrs. Geo. Wash. White, or, as she was known to her neighbors, Lucinda White. She took her place in front of the lens, dressed in her best; and, although it was early fall, the fair Lucinda was arrayed in the glory of a seal plush coat with bugle trimming, and her new bonnet. This exposure also went off successfully.

The plate-holders now being full, it was proposed to adjourn and develop the plates, after which the rest of the directors' pictures were to be taken.

On arriving at the kitchen of Mr. Lamb, only the directors were to be admitted. Exception, however, had to be made in favor of Lucinda White, who would take no refusal.

The printed directions were now carefully read by both Hip and the parson. Two dr. of the W. E. Ketchem developer were carefully poured into 6 dr. of W. E. Ketchem developer No. 2; then five drops of W. E. Ketchem No. 3 were carefully added. Then came 4 oz. water (Turkeytown), and the developer was ready. The hypo. was dissolved in 8 oz. of water, and poured in pan No. 2; then the shutters were closed, the W. E. Ketchem ruby lantern, made of post paper, lit. Then the first plate was put in the tray, and the liquid poured over it. Of course it was a fog. The next one was then tried, and as the developer was poured over it the image flashed out and as quickly faded, as did the hopes of the assembled board. The fact was that photographic club stock looked bearish. Before No. 3 was tried, Brother White, who was suspicious, and had his doubts about Hip, called on the parson to manipulate the tray in his case; and what was the joy of the group when the image of the honored president

gradually and slowly came out. The fact that caused the most satisfaction was that the picture on the plate was so much lighter than the original. The fact was, it made Brother White appear a lemon-yellow. One thing on the plate called forth much discussion, viz., how was it that the picture had a large fan in front of himself in place of a silk hat. It remained an unsolved problem. (It was caused by the movement of the hat and arm in marking time.) The plate was now, according to the printed instructions, put into the fixing bath. Lucinda's picture was now taken in hand, and all was going well. T. C. and T. Club stock began to boom, when it occurred to Hip to look at the plate in the hypo. To his horror he saw that Brother White's lemon-yellow countenance was gone, and in his attempt to get near the light, Hip was unfortunate enough to stumble, knocking the developing tray, with plate, chemicals and all out of the hands of the luckless parson, just as Lucinda's features were coming out in all their orange-colored grandeur. This mishap at once called forth expressions more forcible than elegant from both the president and his spouse, who had been watching the development over the shoulder of the pastor. To make matters worse, in the attempt to recover the plate the ruby lantern was overturned, and the luckless Hip thoughtlessly pushed open the shutter, letting in a flood of bright sunlight. This increased the trouble, and the attempt was at once made to eject the cause of all the calamity. Hip, however, resisted force with force. So the row waxed hot and furious, not the least active participant being the fair Lucinda. Hip, overcome by numbers, was thrown out, much the worse for the affray.

After peace was restored it was found that the camera was hopelessly wrecked, the lens tube crushed, and the chemicals all spilled, most of them over Lucinda's finery. The only thing which had escaped any damage during the discussion in the improvised dark room was the illustrated catalogue and manual of the "W. E. Ketchem Mfg. Co., Limited." The bottom had now fallen out of the T. C. and T. Club completely. The dreams of wealth and affluence were all dispelled, and the blame of the whole failure was heaped upon the venerable head of the parson.

Brother White called a meeting of the board for the next night, when, on motion of the President, seconded by Brother Griggs, it was resolved:

First, That it is expedient to disband the club.

Second, That it is not expedient to return any of the money to the stockholders.

Third, That the full amount of the capital, viz., $25.00, is to be charged to Rev. S. H. Lamb, and credited by him on the back salary account, he having inveigled the stockholders into the scheme; further, that Mr. Lamb take the outfit and property of the company at cost, and pay all outstanding debts; and if not agreed to, he to vacate the Tabernacle forthwith.

Fourth, That the illustrated catalogue of the "W. E. Ketchem Company" be presented to Mrs. White.

In conclusion, the writer wishes to state that any one wanting to purchase one of the great "W. E. Ketchem Photographic Outfits" at a discount, and at the same time perform an act of charity, may do so by addressing the Rev. Sampson Hercules Lamb, Turkeytown, Gobblerville P. O., Penna.

NOTES FROM ENGLAND.

BY W. H. HARRISON.

THIS week the annual conference of the Camera Club has been held in London, and the chief novelty brought before it has been a briefly outlined process by Mr. H. Sutton for the production of type-high blocks for use in the ordinary printing press, and produced by simple means. The inventor stated that he had been working at the problem since 1881, but only on the previous Monday had he obtained results sufficiently advanced to bring under the notice of the Camera Club. His process consisted of the development of a gelatino-bromide negative with alkaline pyrogallol or quinol, fixing it in strong hyposulphite of soda, and washing it in such a way that it should not take up too much water. The plate, if then placed on a metal support, and raised to the temperature of 212° F., will present the phenomenon

of the shadows running all over the plate. If, however, the negative be previously impressed with some definite pattern by the use of a suitable screen, each little dot of the screen image will hold a certain amount of reduced silver, bearing some definite proportion to the action of light and development. The reduced silver produces a certain amount of insolubility of the gelatine, and upon heating the plate the unacted-upon portions of the gelatine are drawn under the dots by capillary attraction. Thus an image is produced in relief, and can be electrotyped directly off the glass negative; the metallic block can then be mounted and sent to the printer. He gave a brief outline of the process, and did not enter into minute details. He exhibited specimens of work done by the process; some of the prints were brilliant, others full of half-tone and somewhat wanting in vigor.

In the course of his presidential address to the congress Capt. Abney said that recently in Paris he had seen Professor Lippmann, who was a man of science and had always borne that reputation. M. Lippmann showed him his colored spectra; there was no doubt that the colors were due to interference, and were not what he might call true colors, since they varied according to the angle at which the plate was held, and they showed next to none, if any at all, by transmitted light. If the reflective exposure to the different parts of the spectrum were correct, and if the development were carried just far enough, on fixing, the colors were visible by reflected light. M. Lippmann told him that if the exposure were not exactly correct, and also the development carried exactly far enough, the colors were not apparent. He was satisfied that every statement made by M. Lippmann was correct, and he doubted if he claimed to have discovered photography in natural colors, which meant to him (Captain Abney) the production of pigments. He thought that the discovery left the problem of photography in natural colors very much as it was before M. Lippmann took it up.

The Engineer newspaper of yesterday contained the following criticism of the foregoing utterances:

"At the Camera Club conference this week, Captain Abney, the president, said that he has seen the results; he admitted

much, but somewhat poured cold water over the process, as partially only published in yesterday's *Times*, in which action there may have been a little perfectly unconscious bias, for within the last two years, upon the British Association and other authoritative public platforms, he put forth elaborate arguments, covering Becquerel's process, that photographs in colors were not the colors of thin plates, and when obtained could never be fixed. We do not go out of our way to quote his last Tuesday's and his previous utterances in parallel columns, for Captain Abney has rendered great and honorable scientific services to photography during a long course of years, but publish these facts in the public interest. M. Lippmann was not present to speak up for his process, should he have been so inclined, and his meritorious work is not likely to be justly appreciated if one particular view of it is sown broadcast in Great Britain in the unscientific section of the press, a tribunal much trusted by the highly intelligent British public. When the most suitable film for obtaining M. Lippmann's results is known, experienced photographers are likely soon to increase its rapidity; orthochromatic methods will quicken the photographing of the red and yellow rays; in short, after time and experience have done their work, it will probably be seen a few years hence that Professor Lippmann's discovery is the root of great advances in heliochromy."

Much activity prevails in photographic circles in this country just now. The Liverpool Photographic Exhibition, just over, was one of the finest ever held in this country; it was got up by the Liverpool Amateur Photographic Association, under the presidency of Mr. Paul Lange. A good one also had been held a few weeks previously at Liverpool, and next Monday we have the opening of the Crystal Palace Photographic Exhibition. The walls of the rooms of the Photographic Society of Great Britain are adorned, through the instrumentality of Mr. Leon Warnerke, with lent specimens of the photo-mechanical work of some of the producers in Europe of this class of work; this exhibition will close soon.

London, April 11th, 1891.

THE PERMANENCE OF DEVELOPED PRINTS.

PRINTING by development seems to be coming more and more into favor; we allude more particularly to bromide and chloride emulsion papers, in which the image is brought out by a developing agent. The point to be considered in the present article is the probable permanence of these pictures, in which the image consists of silver alone, as compared with those made by printing out and subsequently toning, when the image is composed of both silver and gold, or platinum, as the case may be. We are led on to this subject from being shown, a short time back, a number of pictures made by development on rough drawing paper more than a quarter of a century ago; to be precise, as memoranda on the back show, in March, 1864.

These pictures are evidently as brilliant and free from any kind of discoloration or fading as they were when first produced. This is not a little surprising under the circumstances, which are these: The prints were the results of a series of experiments made to find a satisfactory formula for the preparation of drawing paper to give a good color in enlargements by the electric light. Therefore, as the prints were only required for a passing object, it is, as the producer, Mr. E. W. Foxlee, told us, highly improbable that any time or care was bestowed upon the washing. When done with they were cast aside, and got stowed away and forgotten with some old photographic lumber till recently unearthed. Some of the things that had been so long in their company had suffered considerably from damp and mildew; but, notwithstanding all this, the prints show no sign of any deterioration whatever.

The date on the back of the pictures enabled the producer to look up the formula by which they were made. The papers were salted with a bromide, iodide, chloride, and citrate in varying proportions, the bromide in all instances largely predominating. They were sensitized on a strong solution of nitrate of silver, very slightly acidified with acetic acid, by swabbing it over with a pledget of swansdown. The pictures were developed with

a hot plain solution of gallic acid, also by swabbing, and fixed with hyposulphite of soda.

The stability of these pictures cannot, however, be quoted as indisputable evidence that modern developed prints will prove equally permanent, because the conditions under which they are made are widely different, and these we will indicate. In the present development emulsion papers, whether bromide or chloride, there is no free silver; consequently the image is formed entirely of the metal reduced from the silver haloids alone; whereas the old papers contained a considerable amount of free nitrate, hence the image was not dependent upon the metal reduced from the haloids, but was formed by that reduced from the nitrate. Therefore it will be seen that the modern emulsion prints can scarcely be considered as analogous to those just referred to. However, it is quite evident that the developed silver image does not require toning with either gold or platinum to render it permanent in the ordinary sense of the term.

It is now a tolerably well-recognized fact that ordinary silver prints made from strong negatives on highly salted and sensitized paper prove more permanent, all things being equal, than those made under opposite conditions, simply on account of the greater amount of metal of which they are composed. In fact, the image formed under the former conditions somewhat resembles a developed print as regards the quantity of silver it contains.

Let us next consider the question of developed emulsion prints, say on bromide paper. There is no question that there exists, in certain quarters, a prejudice against bromide pictures on the score of permanence, and there is no denying the fact that a considerable number of them have shown a decided change within a comparatively brief period, inasmuch as the lights have become yellow. But we have not yet seen an instance of the actual fading of the image. The yellowness in all cases that have come under our notice has been clearly attributable to careless workmanship—for example, prints placed in the fixing bath while still in an acid condition—or to want of permanency in the paper itself. Although the old developed prints contained free acid after development, it was more perfectly eliminated from them before

fixing than is generally the case now; for if the gallic acid was not washed out of the paper before fixing, the whites suffered, and in getting that out the free acid was almost removed. Furthermore, as the surface of the paper had no coating, such as gelatine, this end was more readily attained.

If the stability of silver prints, whether by development or otherwise, is influenced by the amount of metal of which the image is composed, then should even some bromide prints, theoretically, be better calculated to withstand the action of time and deleterious agents than others. For example, a print that has received but a minimum of exposure, and is forced in the development with a strong developer, consists of a larger proportion of reduced silver, particularly in the shadows, than one that has received the opposite treatment. While the development is prolonged, in order to obtain detail in the lights, reduction is still going on in the other parts of the picture so long as any silver remains in the haloids. If a maximum exposure is given, so that the picture comes out rapidly and the development has to be stopped quickly, the image will be more attenuated and superficial than in the former case. With a very prolonged exposure and a weak developer it is possible to obtain bromide prints of quite a red tone, but then the image is very thin and contains but little silver.

It is, however, a question whether the most attenuated, developed image does not contain far more metal than a modern albumen print, to say nothing of the more favorable condition in which it exists, and for that reason it should be more permanent. That the silver image, pure and simple, is to all intents and purposes permanent, the prints referred to at the beginning of this article, and the old calotype and wax-paper negatives, amply testify.—*British Journal of Photography.*

We are informed that over three hundred applications have been made to the Vienna Exhibition authorities to exhibit, only fifty of which are Austrian, the remainder being from all parts of the world. So it would appear as if the adverse criticism the Vienna folks have lately been subjected to has had very little, if any, influence.

THE PRESERVATION OF PICTURES.

THERE is no doubt but what the possessors of pictures are, without exception, desirous of taking proper care of their treasures; yet very few know just what to do, and in default of knowledge pictures remain for long periods of time accumulating on the surface successive adhesions of obscuring matter. The longer they remain thus the greater becomes the difficulty of any operation on the surface to remove the veil which deteriorates and obscures to the eye the true colors. With a few simple precautions their enjoyment, in all their beauty, may be prolonged for centuries even.

Pictures hung upon the walls of dwellings should be lightly cleaned once a year to remove the stains of house flies and accumulations of dust and smoke. The picture to be thus purified should be laid flat, and carefully wiped with a fine sponge free from grit, moistened with clean cold water. This should be done gently until all stains are taken off. When these disappear all other of the usual adhesions on the surface will disappear. A piece of soft leather wetted and the water wrung out will serve as well as a sponge. In no case must water be allowed to float over the surface, nor is the addition of soap or soda, or indeed anything of this nature added to the water, otherwise than dangerous in inexperienced hands. If this process is undertaken on a dry, warm day the face of the picture will almost immediately after the operation be in a fit condition to have a gentle friction bestowed on it by a dry silk handkerchief. One which has been frequently washed is better for this purpose than a new one, as it becomes softer in the fibre.

Damp has already been remarked as one of the most powerful and insidious enemies of every class of pictorial representation. If a picture is on panel, the wood gradually rots and decays; the same influence is exercised upon the unprotected canvas forming the back of a picture painted on this substance; thence arises the necessity for lining, and after a period re-lining is a somewhat delicate undertaking with a rotten cloth. The effects of damp penetrating

between the interstices of the frame and backboard on water-color drawings or etchings displays itself by the gradual advance of a brown stain, so frequently exemplified in old books and prints as to be familiar to every one.

The dust which gathers behind all framed pictures should be occasionally removed, as it has a mischievous effect, for the greater the quantity of loose dust the longer it will hold the damp; it may not attract it, but it will hold it when it gets it. Perhaps it is unnecessary to caution against hanging pictures on newly plastered walls; common experience has shown it a danger to be avoided. But it has hardly yet entered into consideration that conservatories opening into rooms are so many depots of damp. It is now so growing a practice, and certainly a source of so much inviting pleasure, that the insidious enemy is not perceived. Yet from the watering of plants and the constant exhalations from the moist earth in the garden pots and from the plants themselves, dampness is diffused over the adjoining rooms, to the great injury of all textile fabrics, and the certain detriment of the materials forming the ground of pictures, whether panel, canvas, or paper.

Water, unless used with the greatest caution, is a most dangerous enemy to pictures; it penetrates to the priming or grounds, loosening them by causing a decomposition of the size they are worked with, and thus laying the foundation for their entire breaking up. Pictures painted on the chalk and absorbent grounds are in the greatest danger if washed with water, as it penetrates the small crevices which may be in the paint. If the picture be upon canvas, it is liable to break into a thousand small lines or cracks. If upon panel, it breaks up the paint by scaling it off in small points the size of a pin head. If the picture is painted upon the red absorbent grounds, upon a rough canvas, water not only breaks the unity of the surface, but penetrates in greater proportion, doing proportionally greater damage.

Pictures which have become very much obscured through having been left for a length of time in a very feeble light would be much benefited by being opposite to a window where they could receive strong sunlight for two or three months. Pictures which are nearly obscured by this cause are restored to a greater lustre and brilliancy by exposure alone.—*Vouca's Art Folio.*

GOLD-COLORED ALLOTROPIC SILVER.[1]

BY M. CAREY LEA.

THE object of the present paper (which may be considered as a continuation of that published in this journal for June, 1889) will be: First, To describe the reactions of gold-colored allotropic silver. Second, To show that there exists a well-characterized form of silver intermediate between the allotropic silver previously described and ordinary silver, differing in a marked way from both. Third, To prove that all the forms of energy act upon allotropic silver, converting it either into ordinary silver or into the intermediate form. Mechanical force (shearing stress) and high tension electricity convert it directly into ordinary silver. Heat and chemical action convert it first into the intermediate form, then into ordinary silver. The action of light is to produce the intermediate form only, and even the most prolonged action at ordinary temperatures does not carry it beyond this. Fourth, To show that there exists a remarkable parallelism between the action of these forms of force on allotropic silver and their action on the silver haloids, indicating that it is not improbable that in these haloids silver may exist in the allotropic conditions.

Reactions.—The most characteristic reactions of gold-colored allotropic silver are those with the strong acids. When normal silver, reduced with milk and sugar and alkaline hydroxide, is left in contact with strong hydrochloric acid, even for several hours, there is no action; and the silver, after thorough washing, dissolves in warm dilute nitric acid without residue. With allotropic silver, similarly treated, chloride is always formed; but strong hydrochloric acid instantly converts allotropic to ordinary silver, and consequently only a trace of chloride is produced. By largely diluting the acid the conversion is retarded and the proportion of chloride is greatly increased. Thus, for example,

[1] From *American Journal of Science.*

when ordinary hydrochloric acid is diluted with fifty times its volume of water, and is made to act on allotropic silver, about one-third of the latter is converted to chloride; probably the whole would be but for the simultaneous conversion to normal silver. This double action is very curious, and strongly differentiates allotropic from ordinary silver. Even with the same acid diluted with a hundred times its volume of water there is a gradual but complete conversion to white silver, accompanied by the production of a not inconsiderable quantity of silver chloride. Neutral chlorides also act strongly upon allotropic silver, even when much diluted. So sensitive is this form of silver to the action of chlorides, that if in washing it on the filter river water containing a mere trace of chlorides is by an oversight used instead of distilled water, a thin gray film of normal silver will form on the surface. The reactions above described were obtained with the moist precipitate freshly prepared. By standing for some time, even if kept moist, it appears to undergo change. When freshly prepared it is slightly soluble in acetic acid, but after standing for a week or two ceases to be so.

Sulphuric acid diluted with fifty times its volume of water has no action upon normal silver; when made to act upon allotropic silver it quickly converts it to normal, but at the same time dissolves a little of it.

It is rather curious that the dry film of gold-colored allotropic silver seems to be more easily acted upon by some reagents than the moist precipitate. I have noticed, for example, that oxalic, citric, and tartaric acids do not convert the moist precipitate to normal silver, but films on pure paper are gradually whitened by these acids. It is not a question of strength of solution, for the moist precipitate remained unchanged for twenty-four hours under the same solution which whitened the same material as a dry film.

Ammonia seems to be without converting action, but dissolves a trace. It will be shown in a future paper that there exists a form of allotropic silver abundantly soluble in ammonia.

In those reactions in which allotropic silver acts the part of a reducing agent, as, for example, with potassium ferricyanide and

permanganate and with ferric chloride, etc., its behavior differs from that of ordinary silver chiefly in showing greater activity. The difference is rather of degree than of kind. The formation by these reagents of colored films will be described at the end of this paper.

Intermediate Form.—Allotropic silver presents itself in an almost endless variety of forms and colors,—gold-colored, copper-colored, blue, and bluish-green (these last in thin films, red or purple). Most of these varieties seem to be capable of existing in two conditions, of which one is more active than the other.

If we coat a chemically clean glass plate with a film of gold-colored allotropic silver, let it dry first in the air, then for an hour or two in a stove at 100° C., and then heat the middle of the plate carefully over a spirit lamp, we shall obtain, with sufficient heat, a circle of whitish-gray, with a bright, lustrous, golden-yellow ring round it, somewhat lighter and brighter than the portion of the plate that has not been changed by heat. This ring consists of what I propose to call the "intermediate form." Its properties are better seen by using a film formed on pure paper, one end of which is heated over a spirit lamp to a temperature just below that at which paper scorches. The change is sudden, and passes over the heated portion of the surface like a flash. Examining the changed part, we find:

1. That it has changed from a deep gold to a bright yellow gold color.

2. When subjected to a shearing stress, *it does not whiten or change color in the slightest degree.*

3. It is much harder, as is readily perceived in burnishing it.

4. It no longer shows the color reaction with potassium ferricyanide and ferric chloride, changing only by a slight deepening of color.

Of these characteristic changes the second is the most remarkable. The gold-colored silver in its original condition changes with singular facility to white silver. Almost any touch, any friction, effects the conversion. If the paper on which a film is spread is creased, the crease is found to be gray. Exposure to heat or to light destroys this capacity for change, and it is often

lost by mere standing (even though protected from light) for a few weeks. This evidently indicates some remarkable molecular change. It will be noticed that the anomaly lies in this, that pressure instantly effects the complete change from the original form to normal silver; heat effects the same change, but with an intermediate stage, at which stage *pressure no longer produces any action.*

The intermediate form is distinguished from normal silver almost solely by its bright yellow color and its higher lustre. This last difference is very striking when a film on glass is heated in the manner above described. The central parts in changing to white silver become wholly lustreless, while the circle of "intermediate" retains all its original lustre. Its continuity is still complete, so that if viewed through the glass it still acts as a mirror.

This change may be either molecular or depend on dehydration. The latter seems doubtful, for the latter cannot be brought about by desiccation. Films on paper, on glass, and also solid material, were kept over sulphuric acid *in vacuo* for twelve days[1] without bringing about this modification (they were, of course, thoroughly protected from light). Light is also capable of effecting, to some extent, this change, as will be described farther on.

Copper-Colored Allotropic Silver. — This color of allotropic silver depends to a remarkable extent on the amount of washing which the freshly prepared material receives. With a short washing the material dries to a bright yellow gold color, with more washing to a reddish color, with still more the color is a deep rich copper shade. The washing, when conducted in the ordinary manner, is exceedingly troublesome; the material soon begins to run through the filter and blocks it up. This trouble may be completely avoided by washing with a two per cent. solution of Rochelle salt instead of pure water, until towards the end of the operation.

The mode of preparing the gold and copper-colored forms is as follows; the difference is in the length of washing only:

[1] A longer time was inadmissible, on account of the tendency to spontaneous alteration.

In a precipitating jar are placed

Water	800 c.c.
20 per cent. sol. Rochelle salt	200 c.c.
40 per cent. sol. silver nitrate	50 c.c.

In another vessel are placed

Water	80 c.c.
20 per cent. sol. Rochelle salt	200 c.c.
30 per cent. sol. ferrous sulphate (cryst.)	107 c.c.

(The substances must be added in the order above given, and be mixed immediately before using. It is scarcely necessary to say that distilled water must be used exclusively.) As soon as the mixtures are made the iron solution is to be poured into the silver and vigorously stirred for some time. The white silver tartrate becomes almost immediately bright red, then deepens in color, and finally becomes black.

Substances of a character nearly related to those that I have described in this and the previous paper are obtained by acting on silver tartrate with stannous nitrate. The method is more troublesome and gives inferior results, the gold-colored product is less pure. A beautiful steel-blue substance obtained in this way was found to contain a considerable quantity of tin, probably present as stannic oxide; 10.87 per cent. of tin corresponding to 13.80 SnO_2 was found by analysis. Another analysis gave 10.66 per cent., corresponding to 13.61 SnO_2. In the first case the quantity of silver found was 83.61, in the second 84.12 per cent. These results do not lead to any satisfactory formula. The tin is no doubt present as an impurity, and as the iron process gave far better results, the examination was not carried further. Silver nitrate gives similar results.

(*To be continued.*)

The American Abroad.—Brown (to Robinson, who has been abroad): "And so you have returned from your long-looked-forward-to journey to the famous scenes of the Old World, to the tombs of statesmen, martyrs, and philosophers, to the sublime Alps, great London, and gay Paris. Tell me, old man, what have you done?" Robinson (proudly): "I have exposed seven hundred films!"

A PHOTOGRAPHIC TRIP TO THE BAHAMAS.

PROF. JOSEPH T. ROTHROCK, M.D., of the University of Pennsylvania, who is well known to our readers as a frequent contributor to the AMERICAN JOURNAL OF PHOTOGRAPHY, lately delivered an interesting lecture upon his late voyage to the West India Islands. Not the least result of this trip being several hundred negatives, a number of slides from these negatives were used to illustrate the lecture.

The learned lecturer opened his remarks by stating that their vessel, the "Light Cap," of fifty-one tons, started out at Fernandina, Florida, on November 4th, 1890. We cruised among the Bahama Islands, on the southern side of Jamaica, stopping at Port Moran. The scenery is very monotonous, the soil thin and the productions are not evenly distributed, because in some parts of the Bahama Islands fruits and vegetables grow in abundance, while in others the productions are very scant, and enough is not produced for subsistence for the natives, hence on the unproducing soil the population is always on short rations. We landed at Governor's Harbor, and were ushered into the presence of Governor Shay, who gave us letters of introduction to the authorities, and two aged colored men rendered us all the assistance we wanted, and we were accompanied by the little boys and girls who went along with our party on a tour of inspection, and their sharp eyes would soon see bugs and snakes, and we were informed the names of both. We next went to Cat Island, and this is where Columbus saw the first glimpse of land of the western hemisphere. One peculiarity here is that when you look at the sun it is not round; something has cut the top off of it. The next place we visited was Columbus Point, and we found here a beautiful coral reef. One peculiarity about the water here is that we could see our anchor down in the water for forty feet, and the large and small fish swimming around it.

Numerous views were shown of the different kinds of trees. The sea grape grows in Jamaica, and is very large. The salt hills were visited, and one would suppose that the great body of rain

that falls here at times would wash the salt away; but this is not so, as the top of these salt hills gets so hard that it is rendered impervious to water. We found in this part of Jamaica that the women are far superior to the men in strength, and it was no common thing for us to see the women carrying large bags of salt weighing from 100 to 150 pounds on their heads, while the men were standing by looking at them wearing their lives away by being subjected to carrying these burdensome loads. Dr. Rothrock said this was a case where he had to change his mind in regard to the weakness of women. The water that is used for drinking purposes is often carried for over a mile, and the British Government would do well if it would see to it that the seven large wells there are always kept in order; but here is where it is derelict in duty, paying but little attention to the wants of the natives. The trade winds that so much has been said about we found came from the northeast, and are something more than ordinary wind, for when our bark got into these winds they shook her from stem to stern.

We next visited Port Royal, which was destroyed by an earthquake 1740, and here we found the British quarantine headquarters, and the residences of several naval officers. The mountains of Jamaica are covered with vast dirt heaps, and although they are very steep and devoid of rocks, yet we find a few houses erected on them. The roads of Jamaica are a bed of stone, over which you are compelled to travel, and every wagon wheel is taxed at the rate of $2 a wheel. The coffee plant is grown 1,200 feet above the level of the sea, and from that height to 5,000 feet; the Blue Mountains of Jamaica supply a good article of coffee. White clover, chick weed, acres of begonias, associated with other flowers, grow luxuriantly on the sides of these piles of dirt mountain high. The northern side of the Island of Jamaica is far better than the southern side; and you will find cocoanut palm trees everywhere. The great mangrove swamp was shown by different views. Sugar is one of Jamaica's principal productions, and as the island is 140 miles long and 65 miles square, they import $7,000,000 of fruit products alone. The logwood tree is not a native of Jamaica; the bread fruit tree affords abundance of provisions for the natives.

An excellent view of a mahogany tree was given, and also a cocoanut tree, the picture of which was exceedingly hard to get, owing to a stiff breeze that is always blowing on the island. The annatta and bamboo trees were shown, together with the allspice and mangole trees; the siba or God tree is something that is held in great reverence. One thing we noticed was that the men who were engaged in the water fishing, instead of making them thin and puny, it gave them great strength, while the women whose husbands were so engaged would stay at home, and by their constant worriment would wear their lives away, thinking about the safety of their husbands. One thing Dr. Rothrock said was that the natives are an honest, straightforward set as a general rule; as they are very temperate in their habits this is the case; and it is only where intemperance rules a community that dishonesty comes.

We expect to introduce some of Prof. Rothrock's views to our readers at no distant date.

A novel formula for burning-in photographs on porcelain is published by the patent bureau of R. Lüders in Görlitz, Germany, viz.:

Mix any vitrifiable porphyritic color with a freshly made solution of gum arabic, then coat a sheet of close and pliant paper (which must be made from rag fibre) with an even coating of this solution. Twelve hours before it is intended for use, the coated paper is drawn rapidly through a solution of oxalated ferrous oxide (oxalsauremeisenoxydul). When dry the sheet is calendered, after which it is exposed in the sunlight under the negative which it is desired to transfer to the porcelain. Experience is the best guide as to length of exposure. The print is now dipped for a few seconds in distilled water, before laying on the porcelain; after a perfect contact has been secured the whole is dipped in water until the paper gradually soaks off. If the plate is gently rocked the dark parts of the print gradually disappear, similar to the former carbon process. After the plate is perfectly dry it is placed in the kiln and subjected to the usual firing, which completes the vitrification.—*Handel's und Gewerb's Zeitung.*

WOODBURYTYPE FOR AMATEURS.

BY W. T. WILKINSON.

SOME time ago the following process was worked out but never published, because other process methods proved a little more troublesome, and this method was forgotten until the letter from Mr. Macdonna the other week awakened the slumbering recollection, and here is the process in full; but unless the operator starts fair, and fits himself up with the proper apparatus, the results will not be good; don't try the process in an off-hand manner, and then, when failure comes, write and abuse the process.

The apparatus needed is: a drying box in which to dry the sensitive tissue, three sheets of patent plate glass 12x10, an upright grooved tin box to hold three plates 15x12, fitted with a Bunsen burner underneath to warm the water in the grooved box, three or four leveling stands, a thermometer, three zinc plates 15x12, polished and leveled.

The materials consist of gelatine, Nelson's No. 2 photographic, bichromate of ammonia, a box of india-rubber solution, benzole, methylated spirits of wine, and plain collodion.

The drying box is merely a shell fitted with six zinc trays, each tray about two inches deep by 12⅛ in. by 10⅛ in. inside, with a small ledge at each corner to rest the plate upon, so that the plate will serve as a lid to the tray, the back of plate being flush with the top of tray.

These trays are half filled with chloride of calcium, and are placed in the box, one on the top of the other.

To make the sensitive tissue, first of all polish the thin patent plates with French chalk, coat with plain collodion in the usual way, and when this has set immerse in clean cold water, until the ether and alcohol are quite washed out, this result being attained as soon as the water flows evenly and without greasy looking marks. The issue compound is composed of:

Gelatine, Nelson's No. 2 photographic . .	5 ozs.
Sugar	1½ oz.
Bichromate of ammonia	600 grs.
Water	12 ozs.

Place the gelatine and water in a clean jar, and allow to stand until the gelatine is quite soft, add the sugar, then put the jar into a pan of cold water, and on a gas stove gradually raise the temperature until the gelatine is dissolved, then add the bichromate in fine powder, and stir with a glass rod, add sufficient of finely ground indigo to just tint the gelatine, then churn well with an egg-beater.

Adjust the three collodionized glass plates on three leveling stands quite horizontally, then into a beaker pour four ounces of the gelatine mixture, tie over the mouth of beaker a piece of fine muslin, and pour the gelatine upon the plate, beginning in the centre; do the same for the other two, and allow the gelatine to set.

See that the three trays in drying box have each a good layer of calcium chloride, then when the gelatine has set quite hard lift the plate from the leveling stand, and put it face downwards in the tray, the ledges at each corner preventing the gelatine film from touching the calcium chloride. As each plate is put into the tray place the tray in the box, and as the last one goes in close the box and leave it for forty-eight hours, by which time the calcium chloride will have absorbed the water from the gelatine and have dried the film, which, after being allowed to stand in the room (dark room) for a little time, can be stripped off the glass, and it is ready for exposure to light.

The indigo should be bought ready ground up from a good maker of artists' colors, its functions being merely to prevent the action of light from spreading latterly.

The tissue is exposed under a good transparent positive, in which is all the detail in lights and in shadow that the original negative is capable of yielding. The transparency must be bright and vigorous; if at all flat or fogged it will be useless. The outside of the picture must be masked, as if the tissue be exposed to the very edges the process of development will be a failure. A box printing frame should be used so as to get plenty of even pressure; the collodionized side of the tissue is placed in contact with the film of transparency. The exposure is very short, and should, whenever possible, be made to direct

sunlight, a Johnson's actinometer being used to gauge the time, a good carbon transparency requiring on an average five tints. During the exposure to light the printing frame should be exactly facing the sun, or the print will be likely to be out of focus.

Before exposing the tissue to light, the three zinc plates should have been polished and coated with a thin film of india-rubber, allowed to set thoroughly on leveling stands, the india-rubber solution being made by dissolving a little of the rubber solution sold in tins at mackintosh warehouses in benzole. This operation takes about twenty-four hours to effect, the solution required being about the same consistency as collodion. These plates may be coated in advance, as they take over a week to get *too* dry.

The tissue being exposed, and the film of india-rubber perfectly set, lay the zinc plate on the bench, india-rubber film up, take a roller squeegee in the right hand, put the edge of the exposed tissue in contact with the film of india-rubber, and then with a heavy pressure of the roller press the tissue in contact with the film of india-rubber, taking care not to allow the tissue to touch the rubber film in advance of the roller. (N.B.—The collodionized side of tissue is next the india-rubber, *i.e*, downwards.) Let the roller press the tissue into contact with the rubber film at the margins, then with a brush apply some thick india-rubber solution all round the edges, so as to prevent the water from getting underneath the tissue; let this india-rubber solution set, then sprinkle liberally with French chalk, which will absorb the last remnants of soft rubber, and place the plate into the developing tank containing clean cold water. At once light the gas underneath, and raise the temperature gradually to 100° F., at which it must be kept for at least eighteen hours, at the end of which time the soluble gelatine not acted upon by the light will be dissolved, leaving a relief in gelatine on the zinc plate. After a rinse under the tap the plate is put on a rack to drain, and when thoroughly drained it is immersed in a dish of clean methylated spirits (free from gum), in which it is allowed to remain for an hour or two, so that the spirit can absorb the whole of the water; from here it is transferred to a drawing rack, where it remains until the relief is quite dry.

The next operation will be to make a cast in fine plaster of Paris, for which purpose the plate is laid face up on a level table, the relief surrounded by strips of wood one inch high, each of the strips exactly the same height and thickness of the others.

The plaster of Paris used must be of the finest possible kind, and should be passed through a sieve of coarse muslin. Pour the plaster into water, stirring vigorously, and when of the proper consistency pour over the relief, passing a long-haired stiff brush over the relief in gentle strokes, so as to prevent air-bells from forming when the plaster has been all poured; level the back with a glass plate (removing the plate before the plaster sets), and allow the cast all night in which to set.

Remove the side sticks, then lift the plaster cast gently away, and carefully examine the surface for air-bells; if any are present, another cast must be made; but if none are present put the cast on one side for an hour or two to allow the surface to get hard, then with a soft brush, dipped in fine plumbago, gently polish the surface, finishing with a clean brush, so as to be certain of removing all loose particles of plumbago.

From this plaster cast another cast is made in Spence's metal, the plaster cast being fixed inside of cast-iron box in such a manner that the metal cast is of a definite thickness, one inch being a very good size, and with perfect parallelism between the front and back. For this cast nothing is better than an ordinary typographic stereotyping casting box, the side gauges being just double the actual thickness. This cast may be made in lead or in stereo metal; but lead or Spence's metal is best, as they give a smoother surface.

The press in which the prints from the stereo mould are made need not be of a very elaborate construction; a wooden tray 13 inches by 11, and half an inch deep, with strips at each corner one inch high, to act as guides for the platen. The platen is a piece of wood two inches thick, made to fit inside the guides, and and in the under surface of this block of wood a piece of thick plate glass is let in, about one-eighth of an inch, and cemented therein by means of a mixture of gold size and red lead; a couple of ordinary box handles on each end of top surface will

complete the press, with the exception of a sheet of gutta-percha at the bottom of tray, in which to embed the stereo mould, which is done by softening the gutta-percha with hot water, putting the mould in the centre and putting the platen in its place with a seven-pound weight in the centre.

The ink is composed of

Gelatine	2 ounces.
Water	13 ounces.

The coloring matter being composed of Newman's color for carbon printing.

The precise strength of the gelatine cannot be given, as each sample of gelatine differs from another, and the proper strength can only be attained by experiment and trial.

The gelatine is soaked in the water till quite soft, then dissolved; the pigment being added and thoroughly incorporated, it is then strained through muslin, and poured into a wine bottle, which is kept in a pan of warm water until required. The paper to be used may be a good sample of dull enamel chromo-litho paper, such as Dickinson's art paper.

To print, the stereo mould is fixed in the paper upon the gutta-percha bottom, then rubbed over with a rag dipped in olive oil, and carefully wiped; a pool of the ink is then poured in the centre of mould; a piece of paper, a little larger than the mould, is then placed over the pool of ink, the platen is at once put on, and the seven-pound weight on the top, and allowed to rest about five minutes, when the weight and platen are removed, and the print lifted from the mould. Now if the high lights are tinted, the pressure is not sufficient, or the ink contains too much gelatine; if the whites are clear but the picture is heavy, then the amount of pigment is too great, and must be reduced by the addition of more solution of plain gelatine.

The prints are laid away to dry, after the superfluous ink has been scraped off the edges, and which is returned to the melting pot to be used again after straining.

When the prints are dry they are soaked in a weak solution of alum, then rinsed in cold water and again dried.

The following points must be carefully observed: The sensitive tissue cannot be dried in any other way than over calcium chloride; if dried in a room it will be quite insoluble when dry, and consequently useless.

When the tissue is dry do not attempt to strip from the glass directly, but allow it to stand a short time.

Do not remove from the calcium box until an hour or two before exposure, as once the gelatine gets at all damp insolubility sets in, and cannot be checked.

The plate upon which the exposed tissue is developed must be quite flat, the plaster mould must be of sufficient thickness to preclude the chance of buckling when drying, and the stereo mould must be made carefully to keep the surface level.

The platen of the press must be flat, and the weight used must be put in the centre; where possible, a lead backing to platen is advisable.

A copying press can be used as a press, in which case the tray alone, without guides, will be used with a thinner plate-glass platen to take the pressure.—*Photography.*

The Photographers' Association of Lancaster, Pa.—The association of local photographers, which was organized last Thursday evening, met again on Monday evening to organize permanently and elect officers. The meeting was held at Knipe's gallery, and was largely attended. A constitution and by-laws were adopted, and the following officers were elected: President, B. Frank Saylor; vice president, Reinœhl Knipe; secretary and treasurer, Harry Black.

The name adopted for the association was "The Association of Photographers of Lancaster City and County." Their object is to elevate and advance the art of photography, and to cultivate a spirit of mutual good-will and fellowship among the members. They propose in the near future to give a very fine lantern exhibition to the public.

The association will hold its regular meetings on the second Monday of each month, and the next meeting will be held April 13th, at the gallery of the president, Mr. B. Frank Saylor.

We wish the new organization success.

PHOTOGRAPHIC FORMULÆ.

A New Hydrochinone Developer. — Alexander Lainer, of Vienna, for some time past has been experimenting with the various formulæ given for hydrochinone developers, for the purpose of testing and if possible improving the same. After many experiments he reached the conclusion, same as did Balaguy before him, that the best results were to be obtained by the use of yellow prussiate of potash with caustic potash or caustic soda.

He eventually settled upon a formulæ for a hydrochinone developer, which permits of exceedingly short exposures, at the same time giving negatives where the detail is well worked out in the shadows. While for reducing power and rapidity of development, it surpasses all other known developers.

Lainer's original formula—the rapid hydrochinone developer—especially useful for instantaneous exposures:

SOLUTION A.

Water	32 ounces.
Sulphite of soda	10 drachms.
Yellow prussiate of potash	30 drachms.
Hydrochinone	2½ drachms.

SOLUTION B.

Caustic potash	13 drachms.
Water	3½ ounces.

For use, mix for say 5x7 plate

Solution A	3 ounces.
Solution B	½ ounce.

For travelers or tourists Lainer recommends the developer in a concentrated form, viz.:

A.—(1) Dissolve

Water (warm)	3½ ounces.
Sulphite of soda	8 drachms.

Then add

Hydrochinone	2½ drachms.

(2) Dissolve

Yellow prussiate of potash	6½ drachms.
Water	3 ounces.

When dissolved mix both solutions, which will give 6½ ounces.

B.—Dissolve

Water	3 ounces.
Caustic potash	1½ ounces.

Or

C.—Caustic soda . . . . . 1 ounces.
Water . . . . . 3 ounces.

To develop cabinet-size plates take

A . . . . . 5 drachms.
Water . . . . . 10 drachms.
B . . . . . 2 drachms.

Or

A . . . . . 2½ drachms.
Water . . . . . 10 drachms.
C . . . . . 2½ drachms.

If the solutions A and B are mixed it will give 6½ ounces concentrated rapid developer; for use, where rapid development is desirable, 3 ounces of water to each ounce of developer. Where extra rapidity of development is not wanted take 6 ounces of water to each ounce of developer.

Lainer recommends as a retarder the usual bromide of potash solution 1:10, added drop by drop. He further recommends that the well-washed plates be fixed in an acid fixing bath.

When a large number of plates are to be developed with the above developer it is recommended to have a dish handy with water acidified with several drops of sulphuric acid, to dip the fingers in case they become slippery from the developer.—J. F. S., from *Photographische Rundschan.*

A Pyro-Hydrochinone Developer.—Dr. Schleussner recommends the following formula as giving negatives with all the characteristics of the collodion wet plate, showing the finest detail and clearest high lights, with the advantage of being rapid printers:

A.—Hydrochinone . . . . . 2½ drachms.
Distilled water . . . . . 34 ounces.
B.—Carbonate of soda . . . . . 3¼ ounces.
Distilled water . . . . . 17 ounces.
C.—Distilled water . . . . . 14 ounces.
Sulphite of soda . . . . . 2 ounces.
Pyrogallic acid . . . . . 5 drachms.
Diluted sulphuric acid . . . . . 10 to 12 drops.

The sulphite of soda is first dissolved in water and acidified with the sulphuric acid, then the pyro is added. For use take

A . . . . . 4 ounces.
B . . . . . 1 ounce.
C . . . . . 1 ounce.

When this solution is slightly warmed the development is much more rapid. It is further recommended to commence the development with old developer until the high lights appear, then finish with fresh developer.

THE PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.

A STATED meeting was held on Wednesday evening, April 8th, 1891, the president, Mr. John G. Bullock, in the chair.

The election of the following active members was announced: Joseph T. Rothrock, S. Ashton Hand, and Louis Taws.

The Board of Directors presented their annual report, covering the period since January 1st, 1890.

During this time the following papers had been read before the society: "On the Dangers of Flash-Light Compounds," by John G. Bullock and Dr. Charles L. Mitchell; "The Silver Printing Bath," by Dr. C. L. Mitchell; "Gelatine Emulsions," by William Bell; "Heliochromy," by F. E. Ives; "Intensification," by Dr. C. L. Mitchell; "West African Eclipse Expedition," by John Carbutt, Jr.; "Notes upon a European Trip," by John Carbutt. Discussions were also held upon the following subjects: "Shutters," "The Optical Lantern," and "Dark-Room Illumination."

A marked increase of interest in lantern matters had taken place; two successful public lantern exhibitions had been given at Association Hall, and six complimentary to members and their friends, at the Franklin Institute and at the rooms of the society.

An exhibition of photographs by Mr. H. P. Robinson had been held in the society's rooms; also a display of the work of members, from which the annual honor pictures for 1890 had been selected.

The total active and life members, March 31st, 1891, was 202.

The treasurer's annual report showed a balance on hand of $1278.62.

The election of officers for 1891–'92, resulted as follows: President, John G. Bullock; vice presidents, Joseph H. Burroughs, Edmund Stirling; secretary, Robert S. Redfield; treasurer, Samuel M. Fox; directors, John C. Browne, Charles L. Mitchell, John Carbutt, George Vaux, Jr., William H. Rau, Frederic E. Ives, Samuel Sartain, George M. Taylor.

The secretary exhibited a new shutter, the invention of Mr. H. B. Morton, of Minneapolis, known as "The Cloud Catcher." The shutter was of the rotary form, attached to the hood of the lens. The opening in the leaf was of a peculiar shape, allowing full exposure to the foreground and landscape, with considerably less for the sky or distance. The shape and size of the opening could be readily changed to suit the character of the view or intensity of the light.

Dr. Mitchell desired to call their attention to an article in *Photography*, dated March 19th, 1891, entitled: "A Series of Experiments on Mixed Developers, and on the Result of Using One Developer After Another." In summarizing that article he believed that the two best results were obtained by first developing the negative in pyro, and then following with a solution of eikonogen; and secondly, by developing the negative with hydrochinon, and then following with eikonogen. He had found that the same effect occurred by using eikonogen after pyro, although from the general tenor of the article it would appear that the experimentalist thought the hydrochinon and eikonogen treatment a little the best. There was very little difference, however, between the two.

The experiments were fully detailed in the paper, and he (the doctor) would recommend the members of the society to investigate the whole subject, and make a study of the article, as it was decidedly worth reading.

Mr. Carbutt said that he had come to the conclusion that, at the present time, a mixture of hydrochinon and eikonogen was the best developer of the day. The two combined—using about two of eikonogen to one of hydrochinon—would give a developer containing the good qualities of both.

Considerable discussion arose at this point in regard to the merits of exposure meters, in particular the Watkins exposure meter.

Mr. Carbutt said he had received one of the Watkins meters, but had not as yet had sufficient experience with it to speak positively in regard to it. It looked, however, as though it would be a very satisfactory instrument.

Mr. Charles R. Pancoast, president of the Waterbury Photographic Society, thought it was a very interesting subject, and of importance to know just how much time to expose a plate. Last spring, about the middle of April, he made an exposure of Carbutt's B 20 plates, with a Dallmeyer rapid rectilinear lens, stop F 32, and two or three seconds was amply sufficient for a fine negative. Taking these same plates in June, when one would presume the actinic power to be greater, five or six seconds was hardly enough. He mentioned one or two more cases where this difference had occurred, and said he would like to know whether these exposure meters would give the correct exposures, or approximately correct.

Dr. Mitchell said the only one of any real scientific value he knew of was the one Mr. Carbutt had just mentioned.

Referring to Mr. Pancoast's experiences, Dr. Mitchell said that on a very bright day he had often found little actinic power, while on other days, probably overcast, he had found the light act upon his plates very quickly.

Mr. Pancoast asked whether,—supposing he desired to expose a plate in a southern latitude, or in this latitude in June, with the sun directly overhead at noon, and he sought to get detail, especially in foliage,—this instrument would make any allowance for that, or would it be necessary to make one's own allowance.

Dr. Mitchell replied that the operator would probably have to make his own allowance. However, he was not yet sufficiently familiar with the instrument to say.

Mr. Coates asked whether it was not possible for the makers of plates to come together and agree upon some common basis for designation of the sensitiveness of plates, so that the numbers would always mean the same thing.

Mr. Carbutt thought it would be a very good thing to do.

Mr. Coates stated that in his opinion it was very important that makers should agree upon some uniform basis. As it was, one maker's sensitometer 40 was about equivalent to some other person's 30.

After considerable discussion, Mr. Stirling moved that a special committee be appointed by the president to take into consideration the feasibility of starting a movement looking to a uniform method of marking plates, the committee to report to the society, which was carried.

* Mr. Julius F. Sachse read a paper entitled, "A SUGGESTION FOR A POSSIBLE METHOD OF IDENTIFYING THE COLORS PHOTOGRAPHED."

Various prints illustrating his experiments, also a few lantern slides, were exhibited to the members by Mr. Sachse.

Dr. Henry Skinner, an eminent entomologist, who was present, said that this would undoubtedly have great scientific value. The trouble with the present method was that it precluded the possibility of illustrating a great many natural history objects on account of the great expense. The larger and showier species of insects had been illustrated, but the great majority had not, especially in this country. It was a great desideratum to have these things illustrated, because, of course, numerous descriptions were had of them, but it was very laborious to attempt to make anything out from such descriptions. It could be seen at a glance the advantages that would accrue from this new method, when it would take anywhere from an hour to a week

* See paper in full, page 202.

to hunt up from numerous descriptions the colors of an object under discussion. The present method on stone was very expensive, took a great deal of time, besides requiring the services of an artist to make drawings, and then the lithographic work, the printing, and finally the coloring by hand. He sincerely hoped that some method of the kind outlined by Mr. Sachse would become successful.

Mr. Carbutt said that the method of illustrating books now by the half-tone process had reached such a state of perfection that he thought, with the aid of orthocromatic photography, it should be possible to make the illustrations for scientific works, with color patches at the foot of each, made to match the color of the object, and using the same as a key, as successfully represented by Mr. Sachse. This would save all the research and description of the colors of the objects. He thought it would be of great value, because a person could by its means carry in his eye (having the key below) the color the bird or fly might possess.

The chairman enquired if Mr. Sachse knew whether the sample tissue colors shown were aniline colors or not. Some of these colors were very fugitive.

Mr. Sachse said he could not answer that question. He had used these tissue colors, on the spur of the moment, as the best set of colors he could get. Of course he would try to match the colors exactly,—probably by the use of water colors,—but the examples he had used were merely ordinary commercial samples of tissue paper, the best he could get.

Mr. Cheyney asked whether it would not be possible to flow orthochromatic plates with a stained soluble gelatine, which would act as a color screen, and thus avoid the necessity of carrying screens to be placed in front of the lens.

Mr. Carbutt said he could only answer that in a theoretical way. He had never tried the experiment, yet did not see why it should not answer. The disadvantages would be, however, that one would be compelled to use the fixed plate as it was, while under present conditions he could use the plate with or without screen, or vary it from the light yellow to the orange, as he desired. This, he thought, was the better plan.

Adjourned. ROBERT S. REDFIELD, *Secreatry.*

In the Twilight Hour.

A HIT, a very palpable hit.
Hamlet, V., ii.

One touch of nature makes the whole world kin.
Troilus and Cressida, III., iii.

Life is as tedious as a twice-told tale,
Vexing the dull ear of a drowsy man.
King John, III., iv.

For there was never yet philosopher
That could endure the toothache patiently.
Much Ado About Nothing, V., i.

'Tis beauty truly blent, whose red and white
Nature's own sweet and cunning hand laid on.
Twelfth Night, I., v.

Night's candles are burnt out, and jocund day
Stands tiptoe on the misty mountain-tops.
Romeo and Juliet, III., v.

A jest's prosperity lies in the ear
Of him that hears it, never in the tongue
Of him that makes it.
Love's Labor's Lost, V., ii.

I cannot tell what you and other men
Think of this life; but, for my single self,
I had as lief not be, as live to be
In awe of such a thing as I myself.
Julius Cæsar, I., ii.

Give sorrow words; the grief that does not speak,
Whispers the o'er fraught heart, and bids it break.
Macbeth, IV., iii.

And this our life, exempt from public haunts,
Finds tongues in trees, books in running brooks,
Sermons in stones, and good in everything.
As You Like It, II., i.

The web of our life is of a mingled yarn, good and ill together: our virtues would be proven, if our faults whipp'd them not; and our crimes would despair, if they were not cherish'd by our virtues.
All's Well That Ends Well, IV., iii.

The quality of mercy is not strain'd;
It droppeth, as the gentle rain from heaven
Upon the place beneath; it is twice bless'd;
It blesses him that gives, and him that takes;
'Tis mightiest in the mightiest; it becomes
The throned monarch better than his crown.
Merchant of Venice, IV., i.

But man, proud man!
Dress'd in a little brief authority,
Most ignorant of what he's most assur'd,
His glossy essence, like an angry ape,
Plays such fantastic tricks before high heaven
As make the angels weep.
Measure for Measure, II., ii.

The poet's eye, in a fine frenzy rolling,
Doth glance from heaven to earth, from earth to heaven,
And as imagination bodies forth
The form of things unknown; the poet's pen
Turns them into shape, and gives to airy nothings
A local habitation and a name.
Midsummer Night's Dream, V., i.

What stronger breastplate than a heart untainted?
Thrice is he arm'd that hath his quarrel just;
And he but naked, though lock'd up in steel,
Whose conscience with injustice is corrupted.
King Henry VI., III., ii.

Our revels now are ended; these our actors,
As I foretold you, were all spirits, and
Are melted into air, into thin air:
And, like the baseless fabric of this vision,
The cloud-capp'd towers, the gorgeous palaces,
The solemn temples, the great globe itself,
Yea, like an unsubstantial pageant faded,
Leave not a rack behind.
Tempest, IV., i.

Queries and Answers.

J. G., Pittsburgh, Pa.—And good rapid rectilinear lense will answer your purpose Consult our advertizing pages.

Arthur S——, New York.—We cannot answer your question in this column, as it amounts to an advertisement, better send the query to some other journal.

Philadelphicus.—The AMERICAN JOURNAL OF PHOTOGRAPHY is the only photographic publication issued in Philadelphia.

Rev. J. P. M——, Elgin, Ill.—Use slow plates, and try your developer with a little less alkali.

James Fredericks, Egypt, N. J.—Transparency plates can be bought from any photo. stock dealer. The emulsion is coated upon fine ground-glass. The manipulation is easy, but it requires common sense and experience to obtain first-class results. Frames for the transparencies may also be bought.

L. S. D.—Write direct to the parties interested in London, you will obtain their catalogue by return mail.

Rusticus.—You will find the table in the British Almanac for 1891.

Thomas K——.—You neglect to write us what plates or developer you used. Your trouble lays in the development. The plates are hopelessly fogged.

Bromide.—The paper is all right, and with proper exposure and development gives excellent results.

Mrs. G., Bryn Mawr College.—You have either forgotten to uncap your lense or draw the slide, there is absolutely nothing on the films.

A Camera Tripod, Ill.—Our Turkeytown article was unfortunately crowded out of the last number, it is concluded in this number. Thanks for your good wishes and appreciation.

Mrs. Jarley, Rochester, N. Y.—Pictures received. Sorry that we cannot use them. In making up the group, you neglected to cover the soap-box which forms the footstool of the queen of beauty. By examining the negative carefully you will see that the inscription, "Use Irish Soap, because it floats," is a little too prominent, as well as slightly out of place in such a group as you wish to represent.

Isaac Nussbaum, Chatham St., New York—We have no photographic outfit which we want to exchange for a suit of clothing.

Indulgent Parent.—Subscribe to the AMERICAN JOURNAL OF PHOTOGRAPHY for your daughters. It will interest and educate her photographically.

YOUGA'S ART FOLIO.—Youga & Co., New York. The March number of this new publication is received. The magazine is what the name indicates,—a work devoted to art and artists. The illustrations include several full-page subjects. The study on page 61, "Jonquils and Double Buttercups" by Madam Vouga, is especially fine. For grace and fine drawing its like is not often met with in current literature. We wish the new candidate success.

The Engraver and Printer: Boston Photogravure Company, publishers. Boston, Mass.—This new venture in journalism is finely gotten up and printed upon heavy coated paper. It is profusely illustrated with illustrations by the half-tone, mezzotype, and photo-relief processes,—showing a variety of subjects. Three of the half-tones are printed in colors, showing that there are still great possibilities in the future for the photographic processes.

Literary and Business Notes.

AMONG THE MOTHS AND BUTTERFLIES. A revised and enlarged edition of "Insect Lives; or Born in Prison." By Julia P. Ballard. G. P. Putnam's Sons, New York and London.

A beautifully gotten up volume of 238 pages. As is stated in the introductory, "The immense variety of caterpillars, and the great difference in their habits and in their new and finished life as moth or butterfly, furnish constant surprise and pleasure in their study. From egg to *imago* (which means the perfect insect or butterfly) they are a study which cannot fail to excite wonder, and lead us from admiration of their beauty and skill to adoration of Him whose work is perfect though invisible, and whose ways, studied never so closely, are still past "finding out." The work deals not alone with the caterpillars and moths, but also with their eggs and crysalis. It is written in a style at once instructive and apt to interest the most casual reader. It is illustrated with over 100 engravings, a number of which have been reproduced from photographs. The subject of the last chapter is our old acquaintance the *Cithronia regalis*, or Royal Hickory Moth. We recommend "Moths and Butterflies" to our readers. It is good from cover to cover, and will be very apt to lead to further study of this interesting subject.

LES TRAVAUX DE L'AMATEUR PHOTOGRAPHE. En hiver par É. Chable, President du Photo-Club de Neuchatel. Pp. 240. Illustrated. Paris, Gauthier-Villars et Fils.

A good, practical treatise for amateurs upon those branches of photography—namely, the making of enlargements, transparencies, and magic-lantern slides—which may be carried on at home in the winter and of long evenings. The author does not claim to set forth anything especially new, his work being the result of his experiments with the modes and formulæ gleaned from a number of years' reading of the photographic literature of all countries. He is an earnest enthusiast on the subject, and his work will be acceptable to all those reading French.

MANUAL DU PHOTOGRAPHE AMATEUR. Orné de graveur daus le texte. Par F. Panajou, Chef du service photographique à la Faculté de Médicine de Bordeaux. Paris, Gauthier-Villars et Fils, Imprimeurs-Libraries. Quay des Grands-Augustins, 65, 1891.

This is an excellent treatise of 160 pages, giving any one taking up the subject of photography a clear insight of the most simple and economical mode of procedure for the production of ordinary amateur work. It treats simply of the use of dry plates as furnished,—not of the preparation of or coating with emulsion; of the selection of outfit, exposure, development, and retouching; and of silver printing, platinum, bromide, carbon, and salts of iron printing by the modes usually practiced. There are a few pages devoted to the coloring of albumen prints. The subject of flash-light photography is not touched upon.

WE have to acknowledge the receipt of the first volume of "Traité Pratique des Agrandissements Photographique." Par E. Trutat, Directeur den Musée d'Historie Naturelle de Toulouse.

The first volume is devoted to the preparatory work of securing the negatives, and treats fully of the various cameras, lenses, instantaneous shutters, etc., in use, and especially of the form of outfit known as detective camera, of which illustrations are given of a great variety, chiefly French and German. In treating of those carrying roll-holders the Kodak is described.

In treating of the selection of lenses the author speaks highly of those of Dallmeyer, Steinheil, Voigtländer (Euryscope), Ross (rapid symmetrical), and Darlot.

For development of plates formulæ are given for pyro and soda, eikonogen and soda, and hydrochinone and soda; but for instantaneous exposures eikonogen with carbonate of potash is recommended.

The preparation of gelatine and collodio emulsions and coating of plates with them are described, also briefly the wet-plate process and working of orthochromatic plates.

Fine Flash-Light Picture.—The finest picture made by artificial light which has ever came to our notice has been sent to us by B. E. Prudden, of Jamestown, N. Y. The picture represents four vestal virgins and an attendant, in classic costume. The posing, lighting, and modeling is simply superb, and is superior to any similar attempt which has come to our notice from this country or Europe. The picture well illustrates the great possibilities of Blitz-Pulver when it is in competent and artistic hands.

Pittsburgh Camera Club.—At the April meeting of the Pittsburgh Amateur Photographers' Society the following officers and committees were elected for the ensuing year: President, W. S. Bell; vice president, R. F. Smythe; secretary, J. H. Hunter; corresponding secretary, W. J. Hunker; treasurer, H. W. Beymer; Executive Committee, C. C. Craft, L. S. Clark, D. Beech, T. T. Brown, and R. F. Smythe; Committee of Arrangements, T. K. Gray, J. H. Hunter, and W. J. Hunker; House Committee, H. W. Beymer, George D. Heisey, E. E. Erensburg, A. R. Neeb, and O. H. Darlington.—A. M. MARTIN, *Secretary.*

RECENT PATENTS.

THE following list of patents relating to the photographic interests is specially reported by Franklin H. Hough, Solicitor of American and Foreign Patents, 925 F Street, N. W., Washington, D. C.

ISSUE OF MARCH 31ST, 1891.

449,487—Dark Room, Portable; J. H. Markley, Brooklyn, N. Y.

ISSUE OF APRIL 7TH, 1891.

449,735—Photographic Shutters; Dallymyer and F. Beauchamp, London, England.

ISSUE OF APRIL 14TH, 1891.

450,214—Camera; T. H. Blair and J. H. Crowell, Vineyard Haven, Mass.

450,447—Photograph Negatives, Device for Lifting; C. H. Bushwalter, Philadelphia, Pa.

450,475—Photographic Cabinet; C. Quartley, Baltimore, Md.

ISSUE OF APRIL 28TH, 1891.

451,027—Photographic Cameras, Slide Shutter for; J. R. Connon, assignor to G. and M. Gennert, Greenville, N. J.